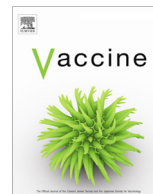




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Commentary

Early experience with COVID-19 vaccine in a Federally-Qualified Healthcare Center for the homeless

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1. Introduction

The Centers for Disease Control and Prevention (CDC) provided phased guidelines for COVID-19 vaccine rollout and clinical guidelines for administration [1,2]. However, there continues to be concerns around health equity for vaccine administration highlighting the importance of community health centers who provide services to the most vulnerable populations [3].

2. Description of practice

Daily Planet Health Services (DPHS), Inc. is a Federally-Qualified Healthcare Center for the Homeless that has been providing health and human services to the homeless, uninsured and underserved populations of Richmond, Virginia and surrounding counties since 1969. DPHS' mission is to provide accessible, comprehensive, and integrated quality health services to anyone regardless of their housing, financial or insurance status. DPHS offers a sliding-fee schedule based on income, ensuring patients may receive care regardless of their ability to pay.

DPHS offers comprehensive care via an interprofessional staff including medical, behavioral health, dental and case management teams. Three permanent full-time sites (West Grace Health Center, Southside Health Center, and 511 Health Center) and several community-based locations provide our comprehensive services. Our Safe Haven 21-bed facility provides transitional housing with comprehensive and integrated health support services to homeless veterans. DPHS' Medical Respite is a 20-bed specialized shelter providing short-term recuperative care for adults experiencing homelessness.

In fiscal year 2020, DPHS provided services to 10,476 number of unduplicated patients. Since the beginning of the COVID-19 pandemic, 6,179 patients have been seen for a COVID assessment and 1,011 of those were also seen for another visit. 5,168 patients

accessed DPHS as a COVID related visit only. Approximately 88% of DPHS patients live at or below 200% of the federal poverty level; 40% are uninsured; 34% of insured are Medicare or Medicaid recipients; and 25% private insurance. Thirty-two percent identify as Hispanic and 37% identify as black, indigenous and people of color.

Richmond City's Southside area has higher concentrations of poverty with a growing Latinx population. Today, over 67% of the patients seen at DPHS' Southside Health Center indicate Spanish as their preferred language while 27% of all patients are best served in a language other than English.

The majority of DPHS patients have multiple chronic health conditions, co-occurring behavioral health disorders, and poor oral health, all of which require extensive care and follow up to improve outcomes. They also face numerous barriers to care including transportation, lack of access to nutritious foods, and the inability to comply with treatment protocols for numerous reasons. This paper will describe the development of a DPHS' COVID-19 vaccine program including successes and problems.

3. COVID-19 vaccination program

Prior to the arrival of COVID-19 vaccines, DPHS started the education and discussion about COVID-19 vaccines with staff and patients. Our Chief Medical Officer met individually with staff to discuss the vaccine. During primary care appointments, patients were asked if they intended to receive the vaccine when it became available. Open and honest discussions with staff and patients were important to build trust and the foundation for the COVID-19 vaccination program. Additionally, our training for staff about strong recommendations for influenza vaccine has provided benefit in providing recommendations for COVID-19 vaccines. DPHS used other lessons learned from influenza vaccine seasons to develop and plan the COVID-19 vaccination program. These included identification of champions and a team approach to vaccination across the organization. In November 2020, DPHS utilized enterprise-wide morning huddles to provide updates and information about the vaccine. Staff received supplemental training and a refresher in intramuscular injection. Key personnel were identified including hiring an individual from grant dollars to be responsible for the daily COVID-19 vaccines administration. The preplanning

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and education prior to the arrival of the vaccine set our program up for success. Table 1 includes a list of key strategies for success.

The COVID-19 vaccine program started as a partnership with the Richmond City Health District (RCHD) and the Virginia Department of Health (VDH) when in December 2020, DPHS was chosen to offer COVID-19 vaccines to local safety net healthcare providers. During this process, DPHS was able to work out a larger scale vaccination process including social distancing for the post-vaccination waiting period. First problem was the challenge to find space for social distancing during the 15 min waiting period but DPHS provided the vaccines during off hours and utilized the entire building with health care providers available on each floor in case of an emergency. In the first week, DPHS administered 400 COVID-19 vaccines to safety net providers. DPHS developed social media tools including Instagram picture frames and COVID-19 vaccine buttons for the healthcare providers. To date, 90% of DPHS staff have received the COVID-19 vaccine.

Instead of registering the safety net employees in the Electronic Health Record (EHR), DPHS directly documented the vaccine administration into the Virginia Immunization Information System (VIIS). Afterwards, the process consisted of entering vaccine inventory and all patients into the EHR. The EHR electronically transferred information into the VIIS. Templates were created in the EHR to facilitate documenting administered doses. Second problem was that sometimes doses went undocumented or notes were not completed causing manual tracking, matching and verification of administered doses from screening forms.

Rationale for not registering safety net employees is the extensive registration process needed to meet Federal funding requirements. Completion of registration paperwork posed another problem of vaccinating individuals who met the criteria but not registered in the system. However, information such as race and ethnicity was important for reporting COVID-19 vaccines. We were able to streamline the paperwork by removing some of the sliding fee scale information. Another problem was finding time for registration staff to register and schedule vaccines while responding to assessment and treatment needs of patients. Bilingual registration staff were added as part of the pandemic response.

The RCHD identified homeless individuals as the next group to receive COVID-19 vaccine and provided DPHS with a list of 27 locations. The locations were a mix of shelters and supportive housing. DPHS launched the COVID-19 vaccine outreach program administering 750 COVID-19 vaccine first doses at 22 locations over the first 5 weeks. Vaccination rates at the locations calculated from number expected to number vaccinated and ranged from a low of 28.6% to 100%. Higher vaccination rates occurred in the more

structured programs treating substance use disorder. The outreach events targeted specific eligible individuals, very rarely did we have an individual present for a vaccination who was ineligible per the current criteria. Typically staffing at the outreach events included individuals for case management (outreach), registration, vaccine documentation, dose preparation and administration. Virginia Commonwealth University trained health professional students as part of a vaccination corps program. These students including medicine and pharmacy provided extra staff for vaccination clinics and were a key factor in the success. Students were provided site specific training and administration technique was verified by DPHS staff. DPHS did not have any issues with student volunteers but some did require more supervision. Our team preparation and connection with the community enabled the success of the outreach events.

Initially, vaccine administration was limited to homeless persons and vaccination occurred during scheduled appointments or outreach. Until criteria for eligibility increased, DPHS providers used the International Classification of Diseases (ICD-10) Z28.83 (immunization not carried out due to unavailability of vaccine) to identify patients receiving care in the two clinic sites who wanted the COVID-19 vaccine and did not meet criteria for vaccination at the time This enabled identification from the Electronic Health Record for future vaccination.

During week nine, VDH gave DPHS permission to vaccinate anyone classified as socially vulnerable, essentially opening up the criteria to any patient being served by DPHS. The COVID-19 vaccination process included scheduling patients for first doses on Monday through Thursday (alternating morning and afternoon between the two primary care locations) and administering all second doses on Fridays at one location. Another success was how well this process worked and streamlined the process for tracking vaccine doses. Additionally, each site would have vaccine available for patients with appointments in primary care, behavioral health, dental and the COVID-19 testing site (511 Health) for negative-tested patients. Adding a vaccine only appointment posed another problem to find staffing and space for vaccinating and post-vaccination waiting while also providing treatment for patients. The space and time for post-vaccination waiting was the rate-limiting factor for the vaccine administration process. To overcome this we used all available space in the clinic including low traffic hallways for waiting and dedicated one exam room to vaccination only. Medical and pharmacy students completing rotations added additional support for vaccine administration. Additionally, we opened changed our 511 Health from COVID-19 testing to vaccines only on Fridays.

Another problem was how to notify patients of the vaccine availability. DPHS used the EHR to send targeted text messages to patients who were enabled to receive text messaging, but have had issues with messages not being delivered. Therefore, we continue to get creative with how to reach our patients in a timely manner to inform them about vaccine availability. We have implemented one phone extension to schedule the vaccination and have implemented mobile health care.

The most time consuming problem was vaccine inventory which had to be tracked daily including first and second doses and submitted to the CDC COVID-19 Vaccine Finder. VDH also employed several different platforms for reporting doses during this time. It was not clear which reporting platform should be used and it would have been helpful to have only one platform for use and access by the CDC and the states. Additionally, the platforms never seemed to agree on number of doses causing extra stress and time to recount inventory. Further complicating inventory tracking was the inconsistent number of doses (9 to 13) available in a Moderna COVID-19 vial. Doses extracted are highly dependent on the type of needle and syringe used to withdraw the vaccine

Table 1
Key Strategies for Success.

Advanced planning prior to arrival of vaccine
Early and consistent messaging and education with staff and patients
Staff training
- Strong recommendations for vaccine, foundation from influenza vaccine
- COVID-19 vaccines
- Intramuscular injection refresher
Identify and hire key personnel for immunization program including
- bilingual staff
- Identification of champions
- Layered approach to program from registration to providers
- Team approach
Engaging health professional students
Generating list of patients interested in vaccine, but not eligible through
- electronic health record
Outreach to patients
- Current patients through electronic health record
- Leveraged community partners
Ability to test process and procedure with health care provider vaccination
- clinic

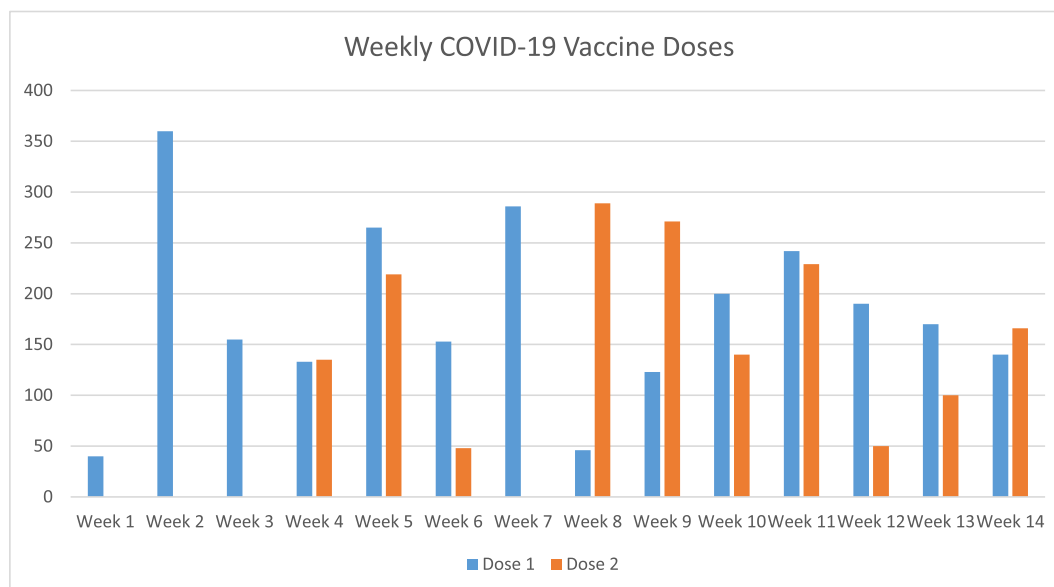


Fig. 1. Weekly COVID-19 Vaccine Doses.

dose. An inventory tracking form was created for documenting doses drawn including the over or under doses. Doses received and administered including whether it was dose 1 or Dose 2 were tracked on a spreadsheet and matched to physical inventory including if doses were borrowed and had to be replaced from dose 1 to dose or vice versa. Tracking vaccine inventory daily and reporting on the multiple platforms takes considerable time. Identification of shipments as Dose 1 or Dose 2 would have made inventory tracking much easier, since sometimes we had to back track weeks prior to make the determination. Inventory management was helped by the maintaining of a list of individuals who wanted vaccine with a process for contacting these individuals for extra doses available at the end of the day. This was successful with DPHS not wasting any doses during the first 14 weeks.

Four thousand one hundred and fifty doses (2503 COVID-19 vaccines first doses and 1647 COVID-19 vaccine second doses) were administered over the initial 14 weeks (Fig. 1). The average age was 49.99 years old (range 18–98 years) for first doses with 927 females (47%) and 1045 males (53%), 259 (10%) patients did

not return for second doses, but 1611 patients received a second dose within the 4 day window. Another problem was ensuring completion of the series. DPHS conducted telephone outreach to individuals who did not show for second doses increasing the number. Comments from individuals not receiving the second dose include “you are trying to manipulate me” and “afraid of side effects.” As vaccine became more available, many individuals not receiving second doses at DPHS received it at another location. At 11 weeks, the vaccination rate for second doses was 82% (1647/2003).

The Commonwealth of Virginia has a focus on improving COVID-19 vaccination coverage in diverse populations. Data from first doses indicates 1354 patients identifying as non-Hispanic or Latino and 395 patients identifying as Hispanic or Latino, and 223 patients refused to disclose. Fig. 2 identifies the race of patients who have received the first dose of COVID-19 vaccine at DPHS. Race and ethnicity data was not collected for the 400 safety net health care workers. These numbers are higher than reported for the population of 9% black and 11% Hispanic or Latino, respectively [4].

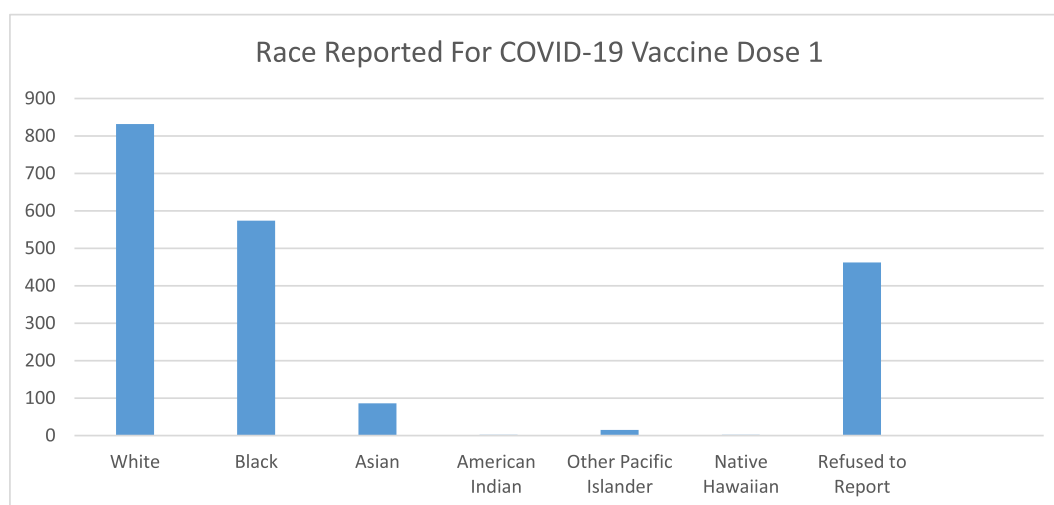


Fig. 2. Race Reported for COVID-19 Vaccine Dose 1.

Table 2
Challenges and Useful Adaptations.

Challenge	Adaptations
Social distancing during post-vaccination waiting	Vaccination offered outside clinic hours and the entire building utilized for waiting.
Registration process	Streamlined information gathered from patients not previously registered with the clinic. Registration staff added to help with additional registration duties.
Reaching patients	Outreach to patients including shelters, hotels, supportive housing and temporary housing facilities. Identification of patients for future vaccination through ICD-10 coding. Implementation of one phone extension for scheduling vaccines.
Staffing	Additional staff hired for pandemic related activities. Health professional student volunteers incorporated into vaccination activities.
Inventory tracking in multiple platforms	Daily accounting of documentation of doses administered against paper screening forms and doses drawn. One person assigned for inventory tracking.
Tracking doses drawn from vials with unequal doses	Paper form for documenting doses drawn was created and manually added to a spreadsheet to track inventory including number of vials, dose number, doses drawn and administered. A list was maintained for administration of extra doses at the end of the day.
Completion of vaccine series	Telephone outreach conducted for patients who did not return for second doses.

A reflection on the early experience reveals that a strong team approach can solve and overcome multiple problems for successful implementation (Table 2) and delivery of a COVID-19 vaccination program in a FQHC for the homeless.

4. Conclusion

A team approach with early education and conversations empowers community health centers to reach the most vulnerable populations for COVID-19 vaccine.

Authors declare no conflicts including employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/ registrations, and grants or other funding that could have appeared to influence the work reported in this paper.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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